

Appl. No. 10/699,130
Amdt. Dated January 3, 2007
Reply to Office Action of August 31, 2006

Amendments to the Claims:

This listing will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board which comprises:

providing a printed circuit board having an electrical assembly formed thereon, the printed circuit board having an upper surface and a lower surface, the upper surface of the printed circuit board having a topography defined by the size, shape and location of individual components of the electrical assembly;

providing a first molded form configured to cover the upper surface of the printed circuit board, said first molded form having an inner surface which is substantially complementarily shaped to the topography of the upper surface of the printed circuit board, including recesses that are complementarily shaped to individual ones of the components of the electrical assembly,

providing a second molded form configured to cover the lower surface of the printed circuit board;

embedding a reinforcing insert into at least one of the first and second molded forms; and

securing the printed circuit board between the first and second molded forms, so that the

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circuit board is enclosed between the first and second molded forms and so that individual components of the electrical assembly are received in a recesses formed in the first molded form that are complementarily shaped to individual ones of the components of the electrical assembly so as to protect the electrical assembly from damage caused by at least one of vibration, shock and thermal changes.

Claim 2 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 1, wherein the first and second molded forms comprises co-molded forms.

Claim 3 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 2, wherein the co-molded forms comprise an a outer surface layer that is harder than a central portion of the co-molded forms.

Claim 4 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 3, wherein the ~~out~~ outer surface layer has ridges formed therein.

Claim 5 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 1, wherein the first and second molded forms are molded

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together about a hinge.

Claim 6 (Canceled)

Claim 7 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 4, wherein the embedded structure comprises at last one of a rigid structure, an emi shield and a thermal conductor.

Claim 8 (Currently amended): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 1, wherein the electrical assemblies comprise assemblies that are used in down hole applications.

Claim 9 (Currently amended): A method of fabricating a molded form used to enclose and protect an electrical assembly provided on a printed circuit board which method comprises:

providing a printed circuit board having an electrical assembly formed thereon and having an upper surface and a lower surface, the upper surface of the printed circuit board having a topography defined by the size, shape and location of individual components of the electrical assembly;

producing an electronic image of the upper surface;

modifying the electronic image of the upper surface by measuring the heights of the

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individual components of the electrical assembly and either adding a factor to the measured heights or subtracting a factor from the measured heights; surface;

fabricating a mold for injection molding a molded form that is substantially complementarily shaped to the topography of the upper surface of the printed circuit board, said mold being complementarily shaped to the topography of the upper surface of the printed circuit board by an operation that utilizes the modified electronic image of the upper surface of the printed circuit board, said mold including protrusions that are complementarily shaped to individual ones of the components of the electrical assembly; and

injection molding a molded form using the mold which molded form is configured to enclose and protect an electrical assembly provided on a printed circuit board, the molded form having recesses formed by the protrusions, which recesses are complementarily shaped to individual ones of the components of the electrical assembly and configured to receive individual ones of the components of the electrical assembly.

Claim 10 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 9, wherein the electronic image of the upper surface of the printed circuit board is produced by scanning the upper surface of the printed circuit board.

Claim 11 (Canceled)

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Claim 12 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 9, wherein the electronic image is modified by adjusting for space around each of the individual components of the electrical assembly.

Claim 13 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 9, wherein the molded form is co-molded.

Claim 14 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 13, wherein the co-molded form comprises a outer surface layer that is harder than a central portion of the co-molded form.

Claim 15 (Currently amended): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 14, wherein the ~~out~~ outer surface layer has ridges formed therein.

Claim 16 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 9, wherein the molded form

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comprises upper and lower molded form portions.

Claim 17 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 16, wherein the upper and lower molded form portions are coupled together by a hinge.

Claim 18 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 9, wherein an embedded structure is molded into the molded form.

Claim 19 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 18, wherein the embedded structure comprises at least one of a rigid structure, an emi shield and a thermal conductor.

Claim 20 (Original): A method of fabricating a molded form used to protect an electrical assembly provided on a printed circuit board according to claim 9, wherein the electrical assembly comprises an assembly that is used in down hole applications.

Claim 21 (Canceled)

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Claim 22 (New): A method of protecting electrical assemblies fabricated on a printed circuit board according to claim 1, wherein the reinforcing insert comprises at least one of a scrim, an emi shield and a heat sink.

Claim 23 (New): A method of protecting an electrical assembly having a plurality of electrical components assembled on a circuit board, which method comprises:

providing an electrical assembly that includes a plurality of electrical components which are assembled on a circuit board, the electrical assembly having an upper surface and a lower surface, the upper surface of the electrical assembly having a topography defined by the size, shape and location of individual electrical components that are assembled on the circuit board;

providing a first molded form configured to cover the upper surface of the electrical assembly, said first molded form having an inner surface which is substantially complementarily shaped to the topography of the upper surface of the electrical assembly, including recesses that are complementarily shaped to individual ones of the electrical components that are assembled on the circuit board;

providing a second molded form configured to cover the lower surface of the electrical assembly;

encasing the electrical assembly between the first and second molded forms in a manner that allows the electrical assembly to be removed and replaced between the first and second molded forms without damaging the electrical components or the first and second molded forms

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so that the first and second molded forms can be reused, the electrical assembly being encased between the first and second molded forms so that at least some of the individual electrical components that are assembled on the circuit board are received in separate recesses formed in the first molded form that are complementarily shaped to individual ones of the electrical components of the electrical assembly so as to protect the electrical assembly from damage caused by at least one of vibration, shock and thermal changes by allowing the first and second molded forms to absorb vibrations and shock and/or conduct thermal effects from the electrical assembly.